

REMARKS

No claims have been amended, cancelled, or added. Hence, claims 1 – 20 and 41 – 60 are pending in the application.

SUMMARY OF REJECTIONS/OBJECTIONS

Claim 7 is rejected under U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 – 20 and 41 – 60 are rejected under 35 U.S.C 103(a) as being unpatentable over Japanese Publication No. 11-161656, herein Sasaki, in view of U.S. Patent No. 6,615,241, herein Miller.

REJECTIONS BASED ON 35 U.S.C 103

Claim 7

Claim 7 recites:

a database server receiving a database query that:

references data in a relational structure **as if the data was stored in a multi-dimensional array,**

in response to receiving said database query the database server executing the query by performing steps that include:

Claim 7 requires a database server that executes "**a database query that: references data in a relational structure as if the data was stored in a multi-dimensional array.**" This novel feature provides the ability to execute queries that can be written in a new way. For example, to write a query that computes column values that need the input of multiple rows, the query could be written to specify an inscrutable

combination of self-joins and sub-queries. With the novel feature cited above, you treat relational data as data in a multi-dimensional array and write queries that are easier to develop, understand, and modify.

Office Action fails to even allege a prima facie case.

The Office Action has rejected claim 7 as being obvious in light of Sasaki and Miller. However, in stating the basis for the rejection, the Office Action has failed to allege a prima facie case.

The Office Action has alleged, at best, that Sasaki teaches a database query that "reference[s] data in [a] relational structure." (Office Action, page 4, second paragraph, line 4). Claim 7, however, requires a database query that references data in a relational structure "**as if the data was stored in a multi-dimensional array**". The Office Action has not even alleged that this feature is taught.

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness. (MPEP 2142) To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art...All words in a claim must be considered in judging the patentability of that claim against the prior art." (MPEP 2143.03)

Here, the Office Action has not even alleged that the cited art teaches all the limitations. Specifically, the Office Action has failed to allege that the cited art teaches a database query that references data in a relational structure "**as if the data was stored in a multi-dimensional array**". Therefore, the Office Action has failed to consider "[a]ll words in a claim" and has failed to allege that "all the claim limitations ...[are] taught or

suggested by the prior art". The Office Action therefore has not established a prima facie case of obviousness.

Cited Art Fails to Teach all the Limitations.

The cited art fails to teach all the features of claim 7, and, in particular, fails to teach a database query that references data in a relational structure "**as if the data was stored in a multi-dimensional array**".

Sasaki clearly does not teach this feature. Sasaki enables a user that does not understand SQL syntax to request data that conforms to retrieval and extraction conditions by entering those retrieval and extraction conditions into a spread sheet. The spread sheet software is executed on a client computer of a database server. (processes 111 in Abstract(57)) Processes on the client computer generate an SQL statement, based on the retrieval and extraction conditions entered into the spread sheet, send the SQL statement to the database server, and display the data extracted from the database "on the spread sheet software". (processes 112 and 113 in the Abstract(57)). Processes on the client store the retrieval and extraction conditions in relation to a menu, enabling the conditions to be used repeatedly by, presumably, selecting a menu item. (Processes 115 and 116 in the Abstract (57))

Sasaki teaches an "old model" of populating a spreadsheet with data from a database.

The SQL Model clause has been designed to address the sort of situation where, in the past, clients have taken data out of relational databases and imported it into a model held in a spreadsheet such as Microsoft Excel. Often, these models involve a series of macros that aggregate data over a number of business dimensions, over varying time periods, and following a set of complex business rules that would be

difficult to express as normal SQL. I've worked on many a client engagement where the limitations of SQL meant that a number of standalone Excel spreadsheets had to be used, and whilst these gave the client the analytical capabilities they required, the usual issues of scalability, reliability of replicated data, and lack of overall control often became apparent after a while. (Mark Rittman, "The New Oracle 10g SQL MODEL Clause", <http://dba-oracle.com/oracle_news/2004_1_15_rittman.htm>, retrieved from April 9, 2004, see accompanying Information Disclosure Statement")

Thus, Sasaki teaches that to get query results to store data in a spreadsheet, a client transmits a query that references relational data. However, Sasaki does not teach that the query itself references the relational data "**as if the data was stored in a multi-dimensional array**".

Neither does Miller teach or suggest a database query that references data in a relational structure "**as if the data was stored in a multi-dimensional array**". In fact, the Office Action has not even alleged that Miller teaches a database query that references data in a relational structure.

Based on the foregoing, claim 7 is patentable. Reconsideration and allowance of claim 1 is respectfully requested.

Claims 1 and 12

In the previous response, Applicant traversed the rejection under 35 U.S.C 103(a) of the claims." Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it." (MPEP 707.07(f)) This Office Action merely repeats the exact text used to support the rejection of the claims under 35 U.S.C 103(a) that was used in the previous Office Action, and nothing more. Thus, the Office Action not only fails to take note of

Applicant's argument, but fails to answer the substance of it. Applicant respectfully request that substance of Applicant's argument regarding claims 1 and 12 be answered. Doing so advances prosecution.

Claim 1 recites:

in response to receiving said database query, the database server executing the query by performing steps that include:
retrieving data from a relational structure;
storing the data in a non-relational structure that can be addressed as a multi-dimensional array; and
performing said operation specified in the database query on said data.

Claim 12 recites:

in response to receiving the database query, the database server performing the steps of:
retrieving a first set of data from a first relational structure;
storing the first set of data in a non-relational structure; and
manipulating the first set of data by performing the operation previously specified in the database query.

Claims 1 and 12 require the step of storing data, retrieved from a relational structure, in a non-relational structure that can be addressed as a multi-dimensional array, where the step is performed by a database server in response to receiving a database query as part of executing the query. The cited art does not disclose much less suggest a database server responding to a database query in this way.

Sasaki Fails to Suggest in any way all features of Claims 1 and 12

The Office Action has equated the spreadsheet, (as modified by the teachings of Miller), to the non-relational structure cited in claims 1 and 12. Even if this analogy is

true, the cited art fails to suggest all features of claims 1 and 12. Claims 1 and 12 require the following features:

(1) that a database server perform the act of storing data retrieved from a relational structure in a non-relational structure that can be addressed as a multi-dimensional array;

(2) that the database server perform this act in response to receiving a query that specifies operations for manipulating the data; and

(3) that the database server perform this act as part of executing the query.

In the cited art, a client, and not the database server, stores the data extracted from the database in the spreadsheet. Further, the client stores the data in response to receiving data extracted for a query but not in response to receiving the query. Even more, the client does not store the data as part of executing the query.

While the database server receives a query (i.e. SQL statement) and executes the query, Sasaki does not disclose or suggest in any way that a database server stores data in a non-relational structure in response to receiving the query and as part of executing the query. The only act that Sasaki teaches a database server performs in response to receiving a query is to extract the data specified by the SQL statements.

The Office Action, citing three sections of Sasaki, also equates a non-relational structure as claimed to "data [that] is stored in record medium", and presumably equates storing data in the record medium to the database server storing the data in the non-relational structure.

The first of the three sections cited, [0002] lines 1 – 12, does not even contain the term "record medium". As best as Applicant can determine, this section describes a client-server type database system in which a PC is a client that uses table data accessed

in a database, describes that the PC runs spreadsheet software and that the spreadsheet software has a GUI that allows a user to easily set "item and reference conditions", and describes that software can be record "data ejected" by saving it as a file. Nothing about this section suggests that the record medium is data stored by a database server, much less that data is stored in a non-relational structure by a database server in response to executing a query and as part of executing the query, as claimed

The second section cited, [0019], lines 1 – 12, does contain the term "record medium". This section states that a "record medium" records a control program, makes retrieval and extraction conditions, and displays data on the spreadsheet software on a client machine. The things attributed to the record medium imply that the record medium is not medium that holds data (much less data in non-relational structure that can be addressed as multi-dimensional array), but is instead a medium that holds program code. In fact, section [0057] states "The record medium which recorded the program code will constitute this invention." The data on the record medium which has been alleged to be data in a non-relational structure is in fact computer instructions on a record medium, and therefore the teachings about the record medium cannot suggest in any way a non-relational structure in which a database server stores data in response to receiving a query as part of executing the query as claimed.

The final section cited is [0022], lines 1 – 18. This section reiterates what is described in the abstract, which is summarized above. (see section Description of Sasaki). For reasons explained earlier, this section fails suggest in any way data that is stored by a database server in a non-relational structure in response to receiving a database query and as part of executing the query.

Based on the foregoing, the cited art fails to suggest in any way all the features of claims 1 and 12. Reconsideration and allowance is requested.

New Claim 61

Claim 61 requires a "multi-dimensional array [that] has one or more dimensions that correspond to a column of the relational structure." Because the cited art fails to suggest a database query that references data in a relational structure as if the data was stored in a multi-dimensional array, the cited art cannot suggest in any way a "multi-dimensional array [that] has one or more dimensions that correspond to a column of the relational structure."

Based on the foregoing, claim 61 is patentable. Reconsideration and allowance of claim 61 is respectfully requested.

DEPENDANT CLAIMS

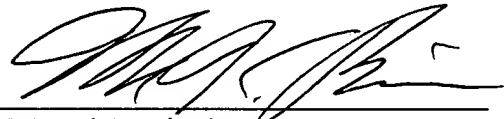
The pending claims not discussed so far are dependant claims that depend on an independent claim that is discussed above. Because each of the dependant claims include the limitations of claims upon which they depend, the dependant claims are patentable for at least those reasons the claims upon which the dependant claims depend are patentable. Removal of the rejections with respect to the dependant claims and allowance of the dependant claims is respectfully requested. In addition, the dependent claims introduce additional limitations that independently render them patentable. Due to the fundamental difference already identified, a separate discussion of those limitations is not included at this time.

For the reasons set forth above, Applicant respectfully submits that all pending claims are patentable over the art of record, including the art cited but not applied. Accordingly, allowance of all claims is hereby respectfully solicited.

The Examiner is respectfully requested to contact the undersigned by telephone if
it is believed that such contact would further the examination of the present application.

Respectfully submitted,

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On 4/9/04 By [Signature]
(Date) (Signature)